ICF-111B

GEP Model
E Model

FM-MW-SW PORTABLE RADIO

SPECIFICATIONS

Circuit System: 10-transistor, 1-FET, 1-IC, 5-diode superheterodyne
1-transistor, 1-diode, 1-LED for auxiliary circuit

Frequency Coverage: FM 87.5～108 MHz (3.42～2.78 m)
SW 3.9～12 MHz (77～25 m)
MW 530～1,605 kHz (566～187 m)

Intermediate Frequency: FM 10.7 MHz
SW/MW 455 kHz

Antenna System: FM/SW built-in telescopic antenna
MW built-in ferrite bar antenna

Sensitivity
at 50 mW output: FM 1.26μV (2 dB) at S/N 30 dB
SW 1μV (0 dB)
MW 16μV/m (24 dB/m)

Selectivity
at ±10 kHz off-resonance: 35 dB at 1,400 kHz

Power Output
at 10% distortion: 700 mW
maximum: 1.1 W

Current Drain
at zero signal: FM 36 mA, SW/MW 30 mA
at 10% distortion: 370 mA

Power Requirement: Three "C" size flashlight batteries 4.5 V in total
Car battery can be used with SONY DCC-126 Car Battery Cord (option).
House current can be used with SONY AC-90E AC Power Adaptor (option).

Speaker: 9.2 cm (3½") dia. PM dynamic, 8Ω

Dimensions: 214 mm (W) x 178 mm (H) x 56 mm (D) (8 7/16" x 7" x 2 3/16")

Weight: 1.3 kg (2 lb 14 oz) with batteries

SONY®
SERVICE MANUAL

TABLE OF CONTENTS

Section	Title	Page
	Specifications	1
1.	**OUTLINE**	2
	1-1. External View	2
	1-2. Internal View	3
	1-3. Block Diagram	3
	1-4. Resonance Indicating Circuit	3
2.	**DISASSEMBLY**	4
	2-1. Rear Cabinet Removal	4
	2-2. Chassis Removal	4
	2-3. Circuit Board Removal	4
	2-4. Resonance Indicating Circuit Board Removal	5
	2-5. Dial Cord Stringing	6
3.	**CIRCUIT ADJUSTMENTS**	6
	3-1. Fm I-f Alignment	6
	3-2. A-m I-f Alignment	7
	3-3. Frequency Coverage and Tracking Adjustment	7
	3-4. Current Adjustment	8
4.	**SCHEMATIC AND MOUNTING DIAGRAMS**	9
	4-1. Schematic Diagram	9
	4-2. Mounting Diagram – Conductor Side –	11
5.	**EXPLODED VIEW AND PACKING**	13
	5-1. Exploded View (1)	13
	5-2. Exploded View (2)	15
	5-3. Packing	17
6.	**ELECTRICAL PARTS LIST**	18

SECTION 1
OUTLINE

1-1. EXTERNAL VIEW

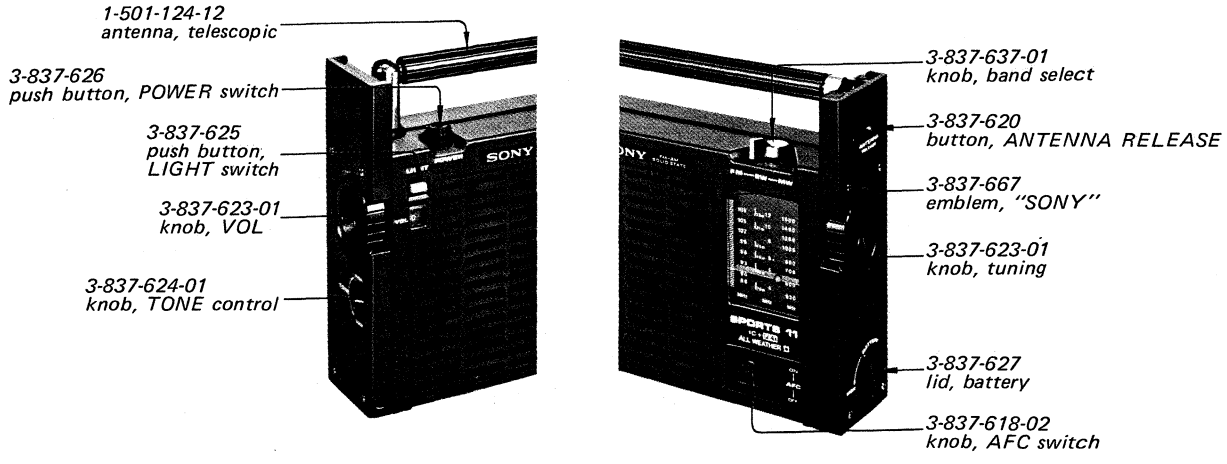


Fig. 1-1.

1-2. INTERNAL VIEW

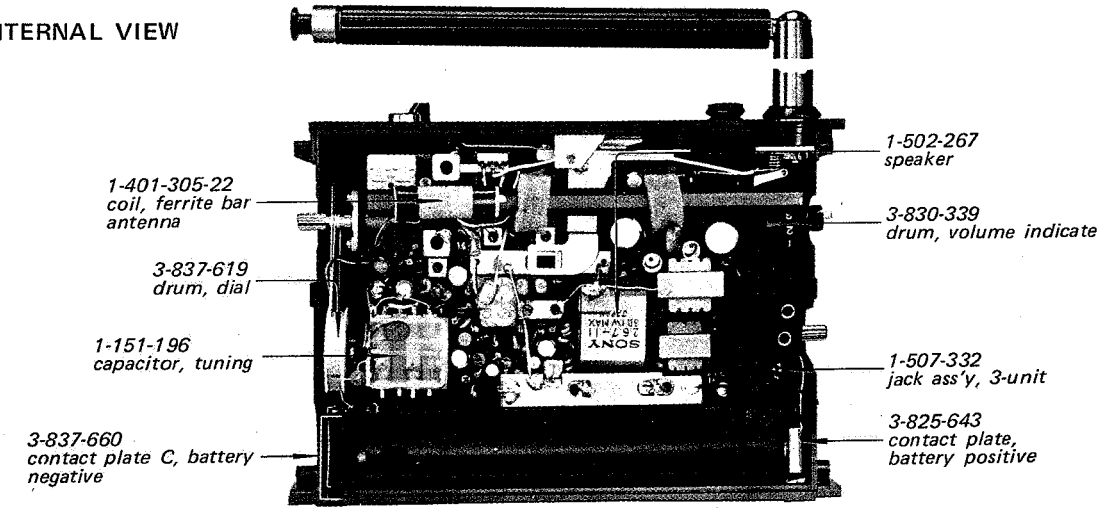


Fig. 1-2.

1-3. BLOCK DIAGRAM

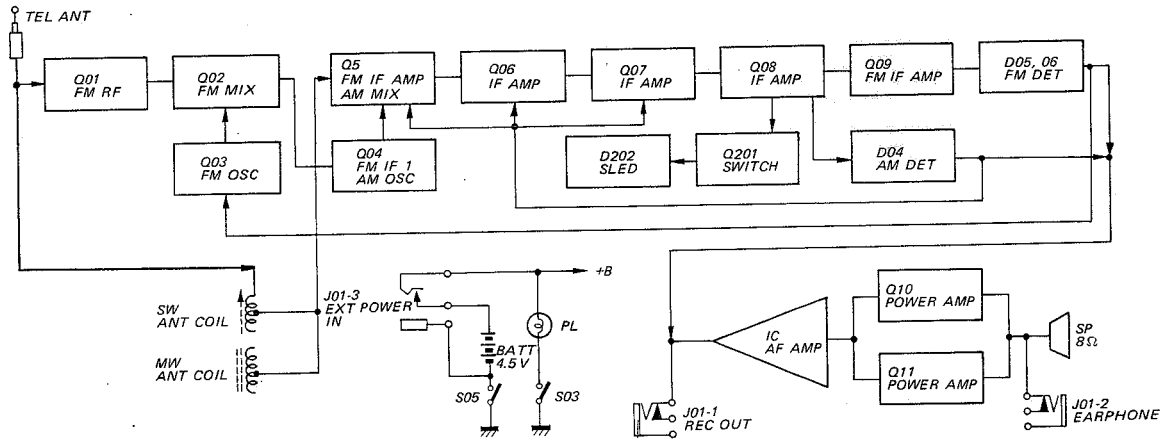


Fig. 1-3.

1-4. RESONANCE INDICATING CIRCUIT

The model ICF-111B resonance indicating circuit uses an LED (Light Emitting Diode).

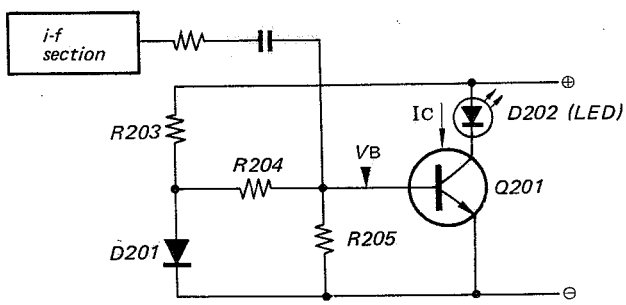


Fig. 1-4.

The circuit is shown in Fig. 1-4. Resistors R203, R204, R205, and diode D201 keep a constant bias voltage (V_B) on the base of Q201. The bias is set at the cut-off point of Q201. Here, D201 stabilizes the bias against a variation in source voltage or temperature.

Idling collector current flows at no input signal, but the transistor has a high sensitivity to an input signal. When an i-f signal (of 455 kHz or 10.7 MHz) is added to the base, collector current flows in proportion to the signal strength. Thus, the LED (D202) is illuminated by the collector current.

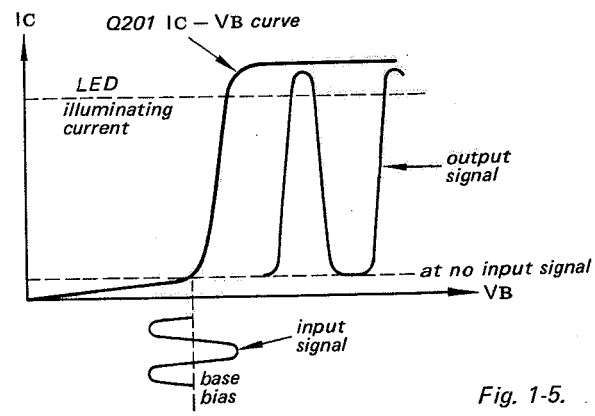


Fig. 1-5.

SECTION 2
DISASSEMBLY

2-1. REAR CABINET REMOVAL

Left Side Cover Removal

1. Remove the four screws labeled Ⓐ in Fig. 2-1.
2. Pull off the left side cover along with the VOL knob and TONE knob as shown in Fig. 2-1.

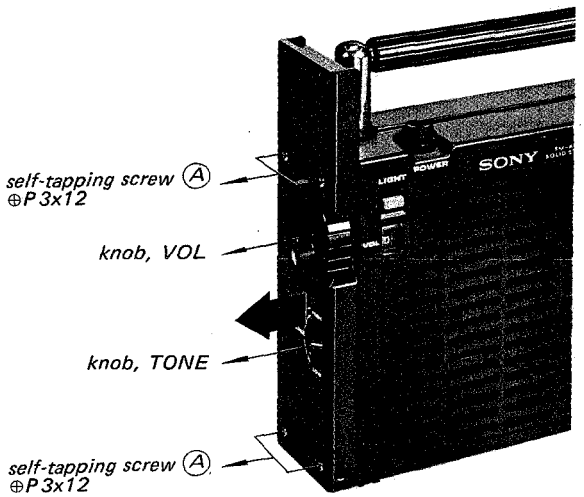


Fig. 2-1.

Right Side Cover Removal

1. Press down the ANTENNA RELEASE button shown in Fig. 2-2.
2. Pull out the telescopic antenna.
3. Remove the four screws labeled Ⓑ in Fig. 2-2.
4. Pull off the right side cover with the tuning knob and battery lid as shown in Fig. 2-2.

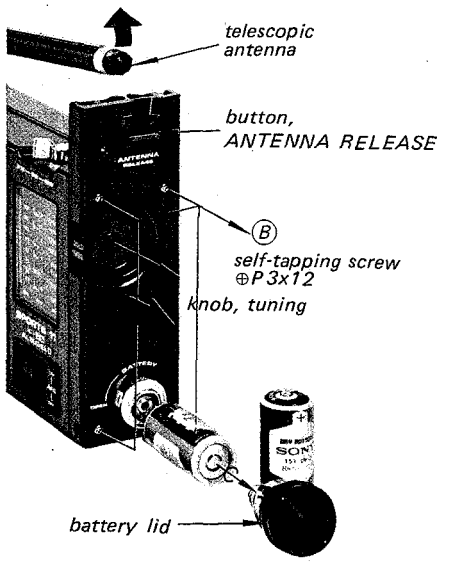


Fig. 2-2.

Rear Cabinet Removal

1. Remove the three screws labeled Ⓒ in Fig. 2-3.
2. Lift up the rear cabinet.

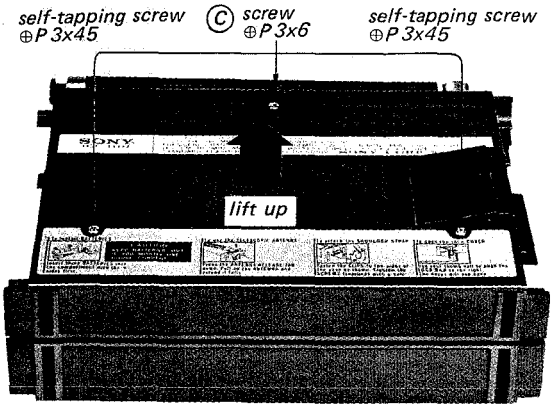


Fig. 2-3.

2-2. CHASSIS REMOVAL

1. Remove the rear cabinet.
2. Push the POWER switch button as shown in Fig. 2-4.
3. Unsolder the pvc wires labeled Ⓓ and Ⓔ in Fig. 2-4.
4. Remove the screw labeled Ⓕ in Fig. 2-4.
5. Lift up the chassis.

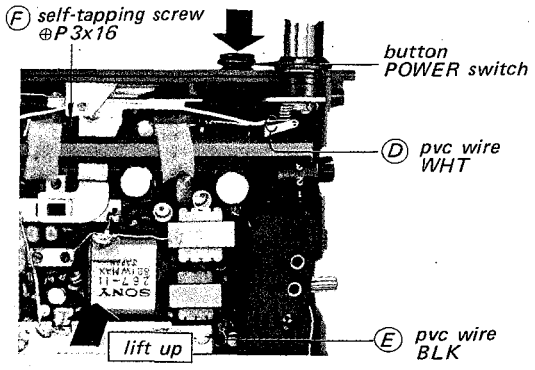


Fig. 2-4.

2-3. CIRCUIT BOARD REMOVAL

1. Remove the rear cabinet and the chassis.
2. Unsolder the wires shown in Fig. 2-5.
   a) four pvc wires (YEL, WHT, VLT and WHT)
   b) four tinned copper wires.
3. Remove the two screws labeled Ⓗ in Fig. 2-5.
4. Remove the screw labeled Ⓘ and the plate labeled Ⓙ.
5. Remove the speaker as shown in Fig. 2-6 and unsolder the two speaker leads.

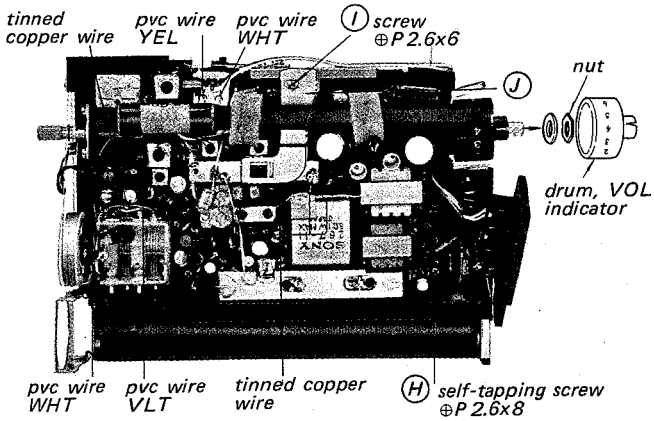


Fig. 2-5.

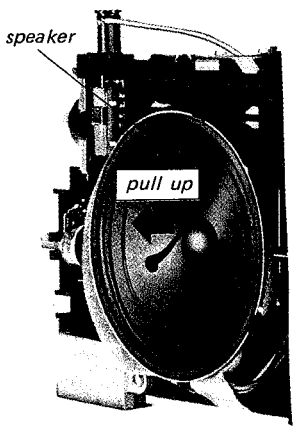


Fig. 2-6.

6. Push the dial scale back plate by a stick as shown in Fig. 2-7 and remove the back plate.
7. Unsolder the four tinned copper wires Ⓚ and pull out the AFC slide switch as shown in Fig. 2-8.
8. Unsolder the six wires (BLU, two BLK, two RED and shielded wire) labeled Ⓛ in Fig. 2-9.

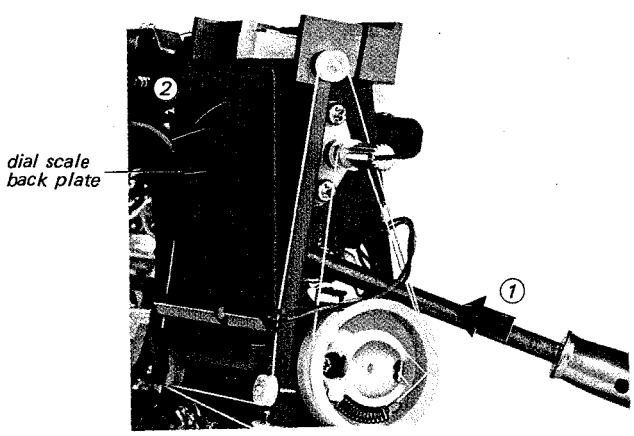


Fig. 2-7.

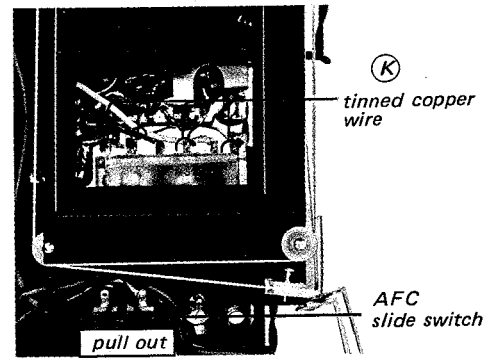


Fig. 2-8.

9. Pull out the TONE control with holder shown in Fig. 2-9.
10. Push down the circuit board squeezing the bar antenna holders.

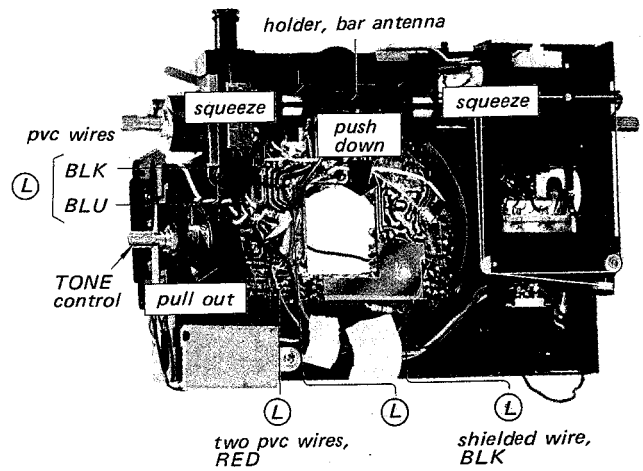


Fig. 2-9.

2-4. RESONANCE INDICATING CIRCUIT BOARD REMOVAL

1. Remove the screw labeled Ⓜ in Fig. 2-10.
2. Unsolder the three soldered portions labeled Ⓝ on the shield cover.

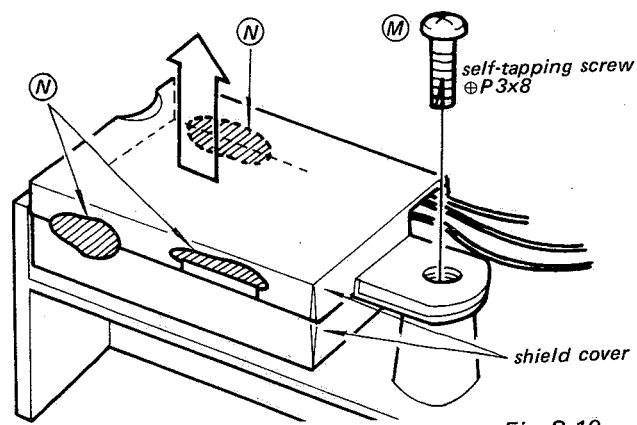


Fig. 2-10.

2-5. DIAL CORD STRINGING

Preparation

1. Remove the chassis.
2. Cut the dial cord by the specified length as shown in Fig. 2-11.

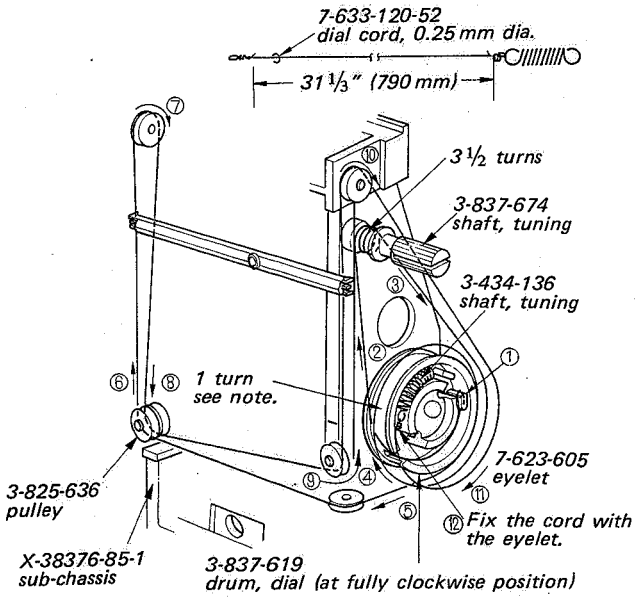


Fig. 2-11.

Stringing

1. Fix the dial cord to the protrusion (step ①) and string the cord in numerical order as shown in Fig. 2-11.

   Note: Pass through the dial cord at step ④ between the two cords of steps ② and ③ as shown in Fig. 2-12.
2. Fasten the both knots with a contact cement.

Pointer Setting

1. Rotate the tuning shaft counterclockwise to the full.
2. Set the pointer to the slit as shown in Fig. 2-12.

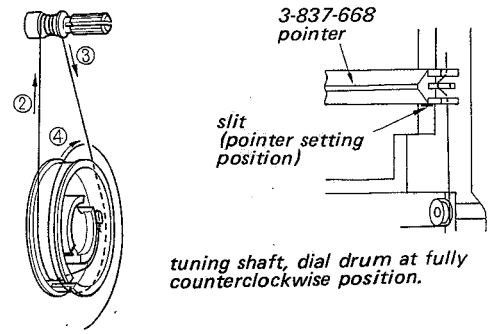


Fig. 2-12.

SECTION 3
CIRCUIT ADJUSTMENTS

3-1. FM IF ALIGNMENT

Test Equipment/Tools Required:

* 10.7 MHz sweep/marker generator
* Oscilloscope
* 0.01 μF ceramic capacitor
* Slot screwdriver

Preparation:

1. Sweep/marker Generator Connection: Across the tuning capacitor as shown in Fig. 3-1.
2. Oscilloscope Connection: Record out jack.
3. Sweep Generator Center Frequency: 10.7 MHz
4. Marker Generator Frequency: 10.7 MHz
5. Band Selector: FM
6. VOL Control: Scale 10 (maximum volume)
7. TONE Control: HIGH
8. AFC Switch: OFF

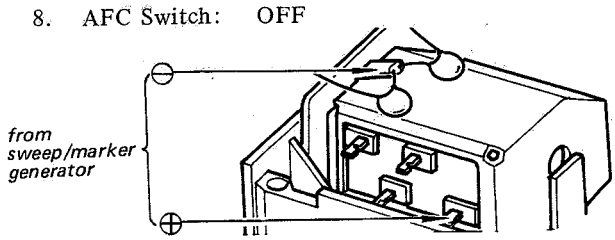


Fig. 3-1. Sweep/maker generator connection

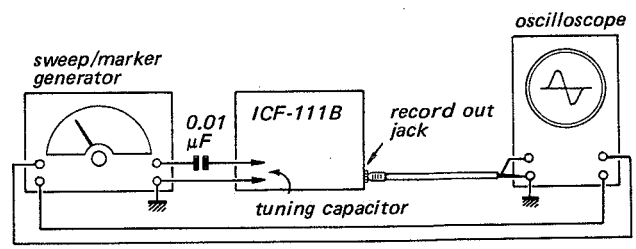


Fig. 3-2. Fm i-f alignment setup

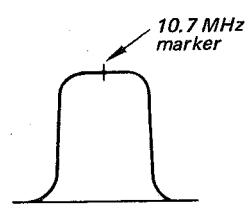


Fig. 3-3. Response curve

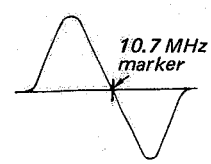


Fig. 3-4. "S" curve

Procedure:

1. Turn the core of discriminator transformer (IFT F5) fully counterclockwise.
2. Turn the core of fm i-f transformer (IFT F1, IFT F2, IFT F3) and discriminator transformer (IFT F4) to obtain the maximum amplitude response curve shown in Fig. 3-3.

3. Turn the core of discriminator transformer (IFT F5) to obtain the S curve response shown in Fig. 3-4.

3-2. AM IF ALIGNMENT

Test Equipment/Tools Required:

* Rf signal generator (for a-m)
* VTVM
* Loop antenna
* 8Ω resistor
* Slot screwdriver

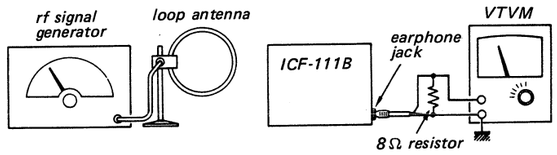


Fig. 3-5. A-m i-f alignment, frequency coverage and tracking adjustment setup

Rf Signal Generator Coupling	Rf Signal Generator Frequency	VTVM Connection	Adjust	Remarks
Loop antenna (See Fig. 3-5.)	455 kHz 1 kHz (30% a-m)	Earphone jack with 8Ω load resistor in parallel.	Cores of IFT A1 CFT A1	Band selector: MW VOL control: Scale 10 (maximum volume) TONE control: HIGH Tuning knob: fully clockwise position Adjust for maximum meter reading.

3-3. FREQUENCY COVERAGE AND TRACKING ADJUSTMENT

Test Equipment/Tools Required:

* Rf signal generator (for fm and a-m)
* Loop antenna
* VTVM
* 8Ω resistor
* Slot screwdriver

Preparation:

VTVM Connection: To earphone jack with 8Ω resistor in parallel.

Modulation: FM...400 Hz ±22.5 kHz frequency-modulated signal
AM...1 kHz 30% amplitude-modulated signal

VOL Control Setting: Maximum
TONE Control Setting: HIGH
AFC Switch: OFF

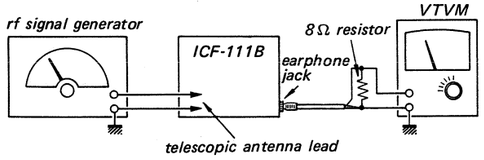


Fig. 3-6. Fm/sw frequency coverage and tracking adjustment setup

Adjustment	Rf Signal Generator Coupling	Rf Signal Generator Frequency	Receiver Tuning Knob Setting	Adjust	Remarks
FM Frequency Coverage	Direct connection to telescopic antenna lead. See Fig. 3-6.	86.5 MHz	Fully counterclockwise	Core of fm osc coil L04	Band Selector: FM Adjust for maximum meter reading.
FM Tracking		109 MHz	Fully clockwise	FM osc trimmer CT02	
		88 MHz	Tune in 88 MHz signal	Core of fm rf coil L03	
		106 MHz	Tune in 106 MHz signal	FM rf trimmer CT01	

Adjustment	Rf Signal Generator Coupling	Rf Signal Generator Frequency	Receiver Tuning Knob Setting	Adjust	Remarks
MW Frequency Coverage	Loop antenna See Fig. 3-5.	520 kHz	Fully counterclockwise	Core of mw osc coil L10	Band Selector: MW Adjust for maximum meter reading.
		1,680 kHz	Fully clockwise	MW osc trimmer CT04-2	
MW Tracking		620 kHz	Tune in 620 kHz signal	Position of mw ant coil L06	
		1,400 kHz	Tune in 1,400 kHz signal	MW ant trimmer CT03-2	
SW Frequency Coverage	Direct connection to telescopic antenna lead. See Fig. 3-6.	3.8 MHz	Fully counterclockwise	Core of sw osc coil L09	Band Selector: SW Adjust for maximum meter reading.
		12.6 MHz	Fully clockwise	SW osc trimmer CT04-1	
SW Tracking		4 MHz	Tune in 4 MHz signal	Core of sw ant coil L05	
		10 MHz	Tune in 10 MHz signal	SW ant trimmer CT03-1	

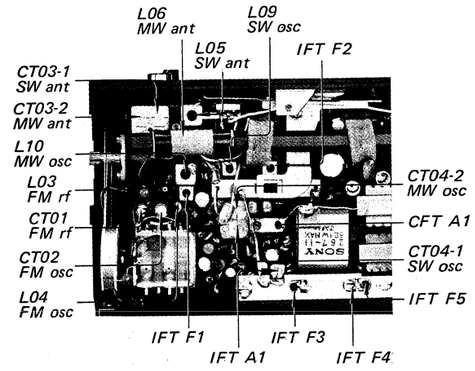
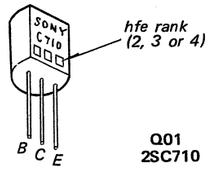


Fig. 3-7. Adjusting parts location

3-4. CURRENT ADJUSTMENT

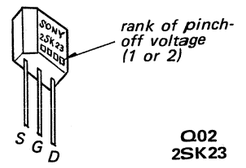
1. R02
R02 is selected in value in accordance with hfe rank of fm rf amplifier transistor Q01.

hfe rank	R02
2	68 kΩ
3	110 kΩ
4	150 kΩ



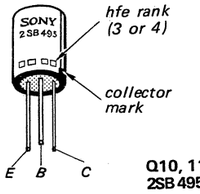
2. R09
R09 is selected in value in accordance with pinch-off voltage of FET Q02.

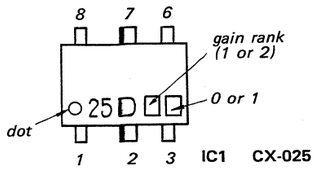
rank of pinch-off voltage	R09
1	5.6 kΩ
2	10 kΩ



3. R58
R58 is selected in value in accordance with hfe rank of transistor Q10 and Q11, and gain rank of IC1.

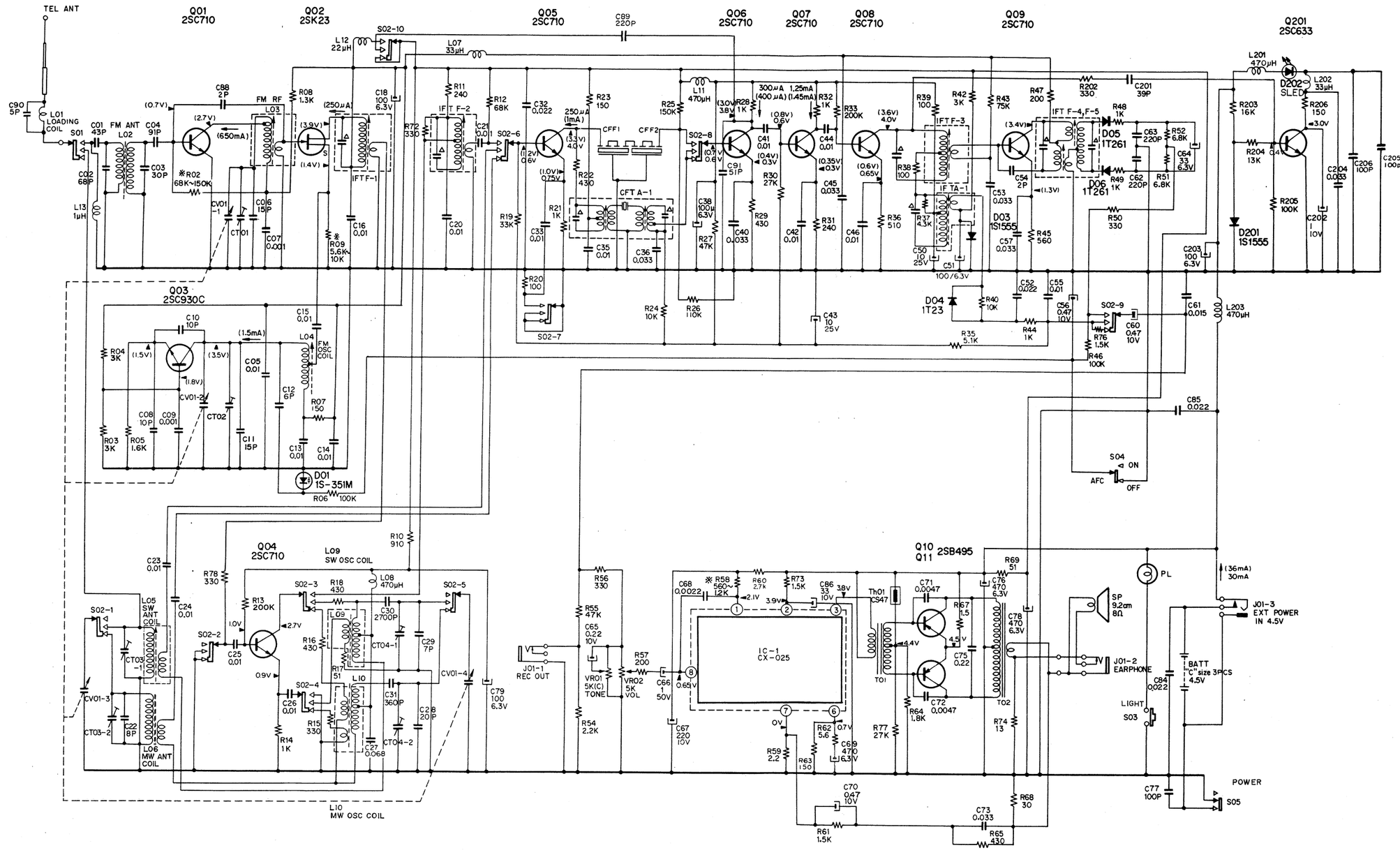
hfe rank	IC1 gain rank	R58
4	2	560Ω
3	2	910Ω
3	1	1.2 kΩ
4	1	910Ω



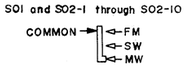


SECTION 4
SCHEMATIC AND MOUNTING DIAGRAMS

4-1. SCHEMATIC DIAGRAM



S01 and S02-1 through S02-10

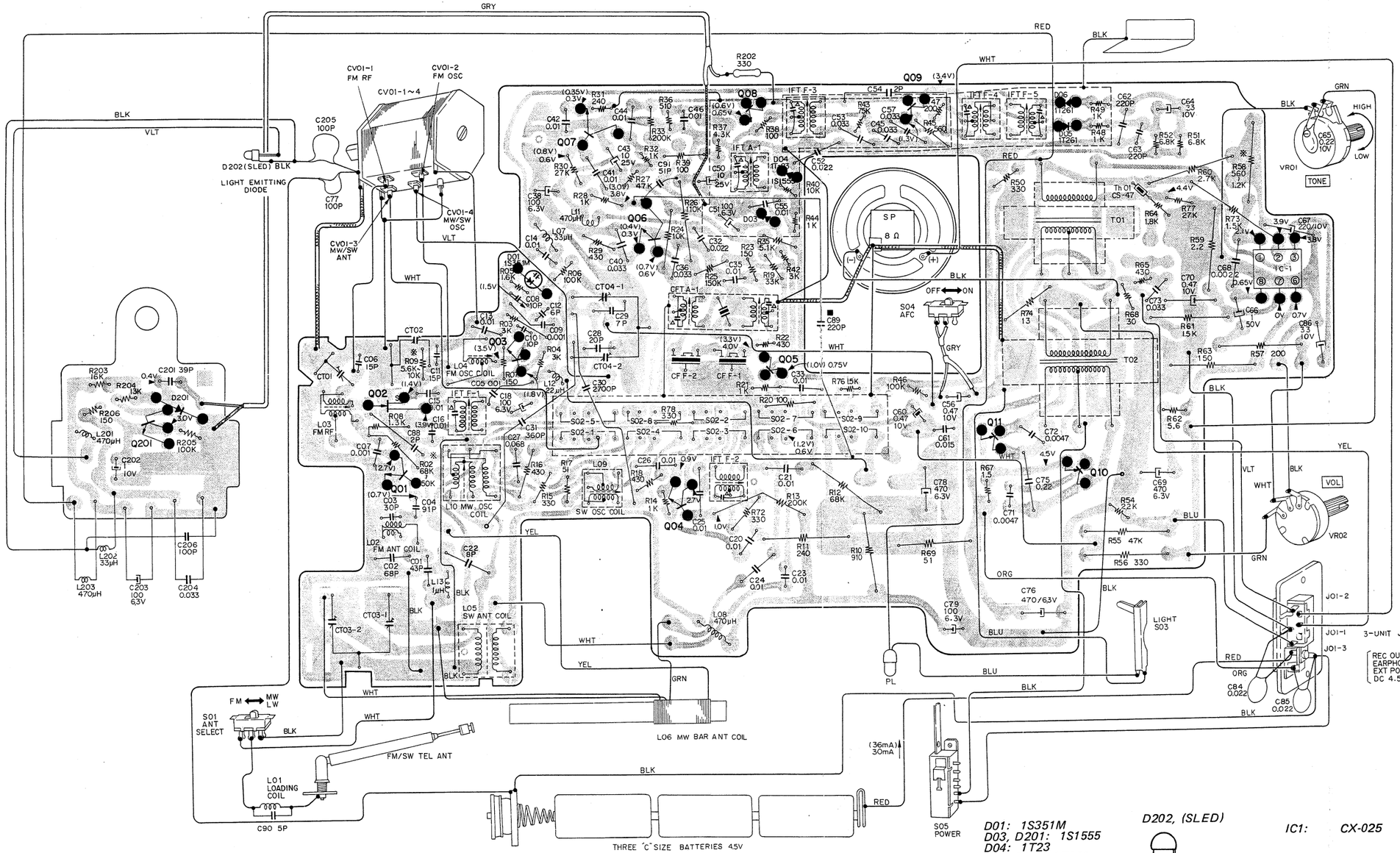


Note:

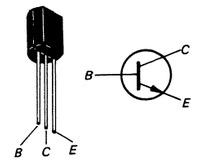
1. All resistors and capacitors are in Ω and μF respectively unless otherwise specified.
2. Capacitors marked △ are built in i-f transformers.
3. The symbol ※ indicates a component whose value is selected to yield normal operating condition.
4. Voltage values are measured from point indicated to ground circuit with a dc voltmeter (VTVM) and current values are measured with a dc ammeter. Voltage and current are measured with no radio signal received. Variations may be noted due to normal production tolerances. The values in ( ) are measured with band selector set to FM.

4-2. MOUNTING DIAGRAM

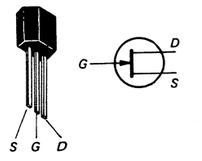
– Conductor Side –



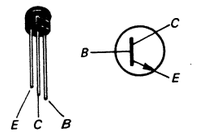
Q01, Q04 ~ Q09: *2SC710*



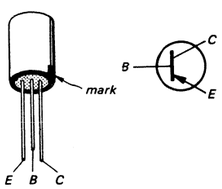
Q02: *2SK23*



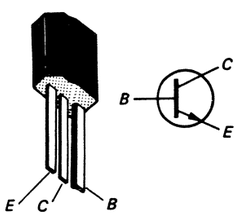
Q03: *2SC930C*



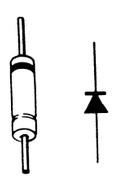
Q10, Q11: *2SB495*



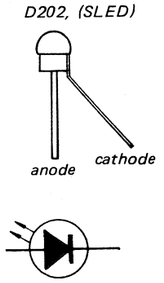
Q201: *2SC633*



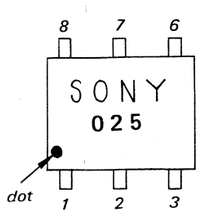
D01: 1S351M
D03, D201: 1S1555
D04: 1T23
D05, D06: 1T261



D202, (SLED)

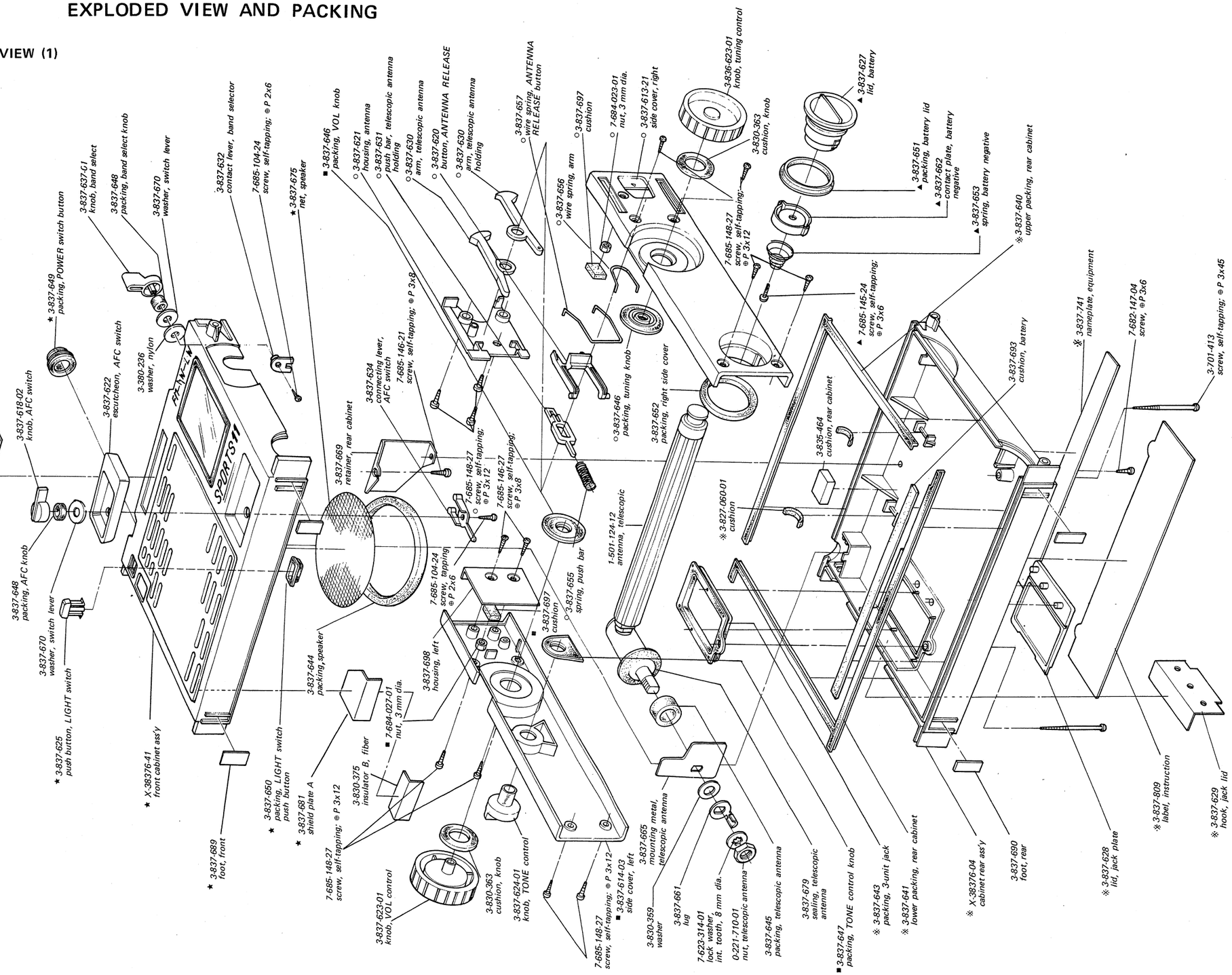


IC1: *CX-025*



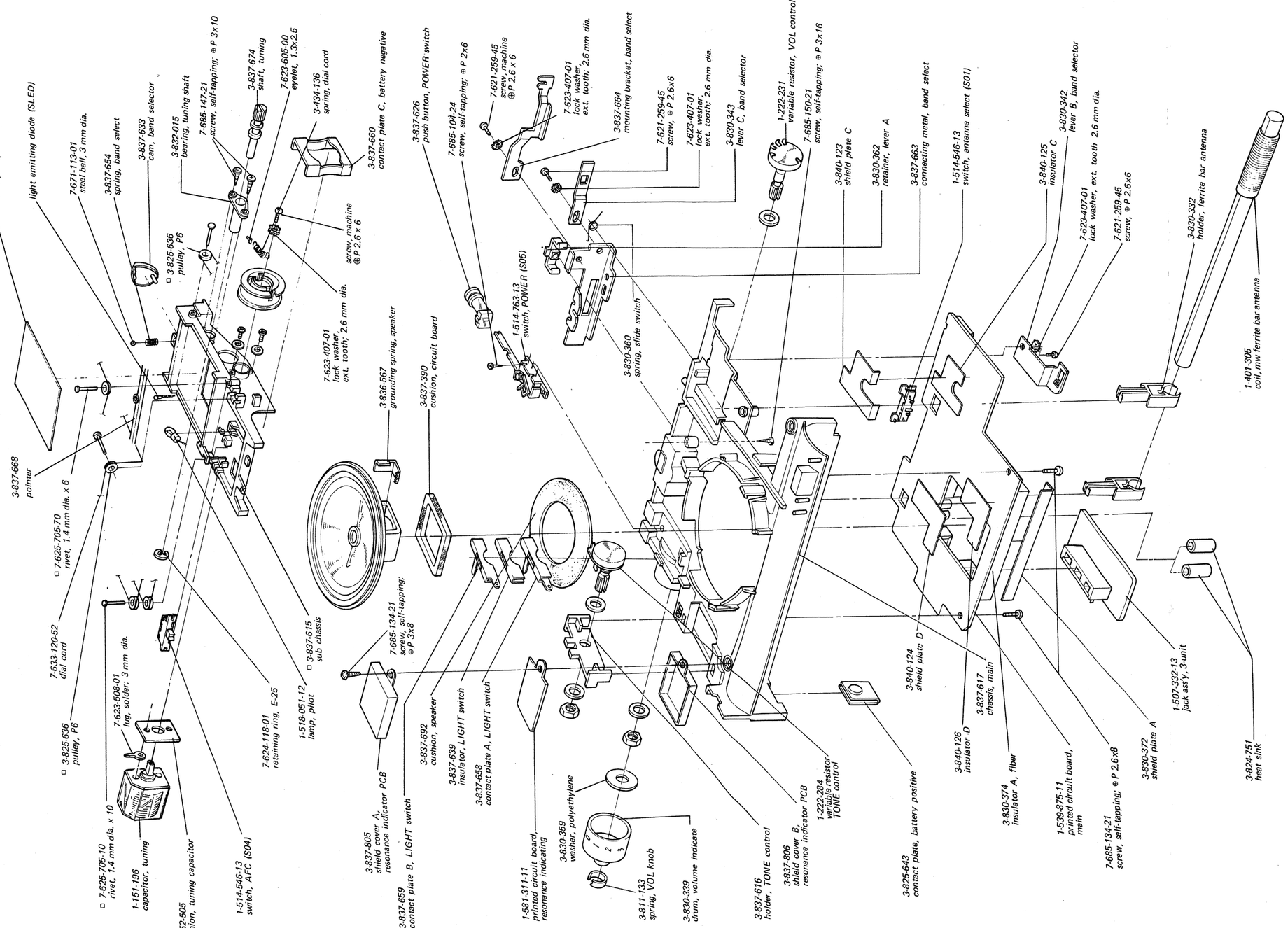
SECTION 5
EXPLODED VIEW AND PACKING

5-1. EXPLODED VIEW (1)


★ 3-837-667 emblem, "SONY"
3-837-618-02 knob, AFC switch
★ 3-837-649 packing, POWER switch button
3-837-637-61 knob, band select
3-837-648 packing, band select knob
3-837-622 escutcheon, AFC switch
3-380-236 washer, nylon
3-837-670 washer, switch lever
3-837-632 contact lever, band selector
7-685-104-24 screw, self-tapping; ⊕ P 2x6
★ 3-837-675 net, speaker
■ 3-837-646 packing, VOL knob
○ 3-837-621 housing, antenna
○ 3-837-631 push bar, telescopic antenna holding
○ 3-837-630 arm, telescopic antenna
○ 3-837-620 button, ANTENNA RELEASE
○ 3-837-630 arm, telescopic antenna holding
○ 3-837-657 wire spring, ANTENNA RELEASE button
○ 3-837-656 wire spring, arm
○ 3-837-697 cushion
○ 7-684-023-01 nut, 3 mm dia.
○ 3-837-613-21 side cover, right
3-836-623-01 knob, tuning control
3-830-363 cushion, knob
▲ 3-837-627 lid, battery
▲ 3-837-651 packing, battery lid
▲ 3-837-662 contact plate, battery negative
▲ 3-837-653 spring, battery negative
※ 3-837-640 upper packing, rear cabinet
▲ 7-685-145-24 screw, self-tapping; ⊕ P 3x6
7-685-148-27 screw, self-tapping; ⊕ P 3x12
3-837-646 packing, tuning knob
3-837-652 packing, right side cover
3-835-464 cushion, rear cabinet
3-837-693 cushion, battery
※ 3-837-741 nameplate, equipment
7-682-147-04 screw, ⊕ P 3x6
3-701-413 screw, self-tapping; ⊕ P 3x45
3-837-669 retainer, rear cabinet
3-837-634 connecting lever, AFC switch
7-685-146-21 screw, self-tapping; ⊕ P 3x8
7-685-148-27 screw, self-tapping; ⊕ P 3x12
7-685-146-27 screw, self-tapping; ⊕ P 3x8
※ 3-827-060-01 cushion
1-501-124-12 antenna, telescopic
7-685-104-24 screw, self-tapping; ⊕ P 2x6
3-837-697 cushion
○ 3-837-655 spring, push bar
3-837-648 packing, AFC knob
3-837-670 washer, switch lever
★ 3-837-625 push button, LIGHT switch
★ X-38376-41 front cabinet ass'y
3-837-644 packing, speaker
3-837-698 housing, left
○ 7-684-027-01 nut, 3 mm dia.
★ 3-837-650 packing, LIGHT switch push button
★ 3-837-681 shield plate A
★ 3-837-689 foot, front
7-685-148-27 screw, self-tapping; ⊕ P 3x12
3-830-375 insulator B, fiber
3-837-623-01 knob, VOL control
3-830-363 cushion, knob
3-837-624-01 knob, TONE control
7-685-148-27 screw, self-tapping; ⊕ P 3x12
■ 3-837-614-03 side cover, left
3-830-359 washer
3-837-665 mounting metal, telescopic antenna
3-837-661 lug
7-623-314-01 lock washer, int. tooth, 8 mm dia.
0-221-710-01 nut, telescopic antenna
3-837-645 packing, telescopic antenna
3-837-679 setting, telescopic antenna
■ 3-837-647 packing, TONE control knob
※ 3-837-643 packing, 3-unit jack
※ 3-837-641 lower packing, rear cabinet
※ X-38376-04 cabinet rear ass'y
3-837-690 foot, rear
※ 3-837-628 lid, jack plate
※ 3-837-809 label, instruction
※ 3-837-629 hook, jack lid

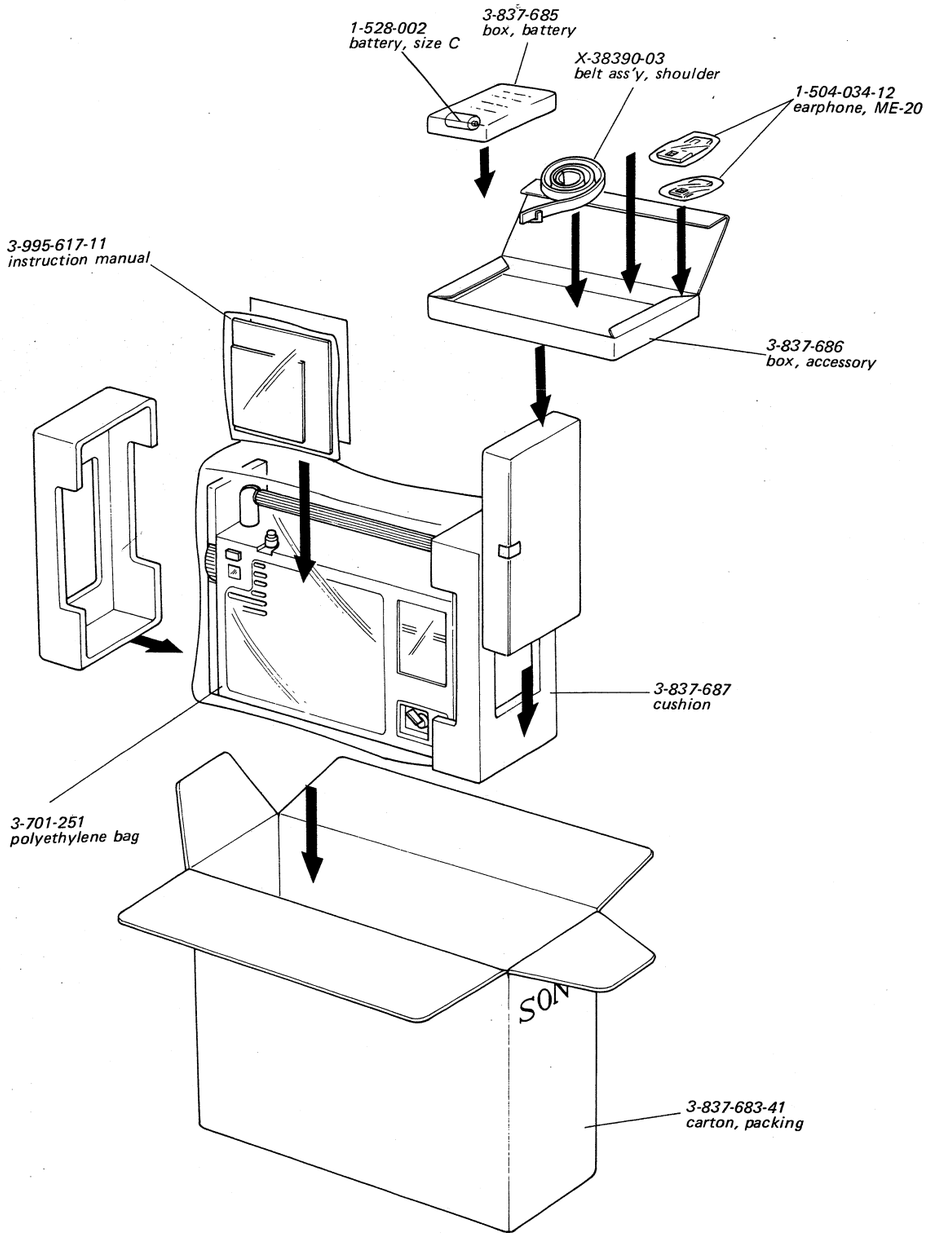
Note: Parts marked ★ are included in cabinet ass'y, X-38376-81-6.
Parts marked ※ are included in rear cabinet ass'y, X-38376-82-4.
Parts marked ○ are included in right side cover ass'y, X-38376-83-2.
Parts marked ■ are included in left side cover ass'y, X-38376-84-2.
Parts marked ▲ are included in battery lid ass'y, X-38376-86-1.

5-2. EXPLODED VIEW (2)


3-837-673 back plate, dial scale
light emitting diode (SLED)
7-671-113-01 steel ball, 3 mm dia.
3-837-654 spring, band select
3-837-633 cam, band selector
□ 3-832-015 bearing, tuning shaft
7-685-147-21 screw, self-tapping; ⊕ P 3x10
3-837-674 shaft, tuning
7-623-605-00 eyelet, 1.3x2.5
3-434-136 spring, dial cord
3-837-660 contact plate C, battery negative
□ 3-825-636 pulley, P6
screw, machine ⊕P 2.6 x 6
7-623-407-01 lock washer ext. tooth; 2.6 mm dia.
3-836-567 grounding spring, speaker
3-837-390 cushion, circuit board
3-837-626 push button, POWER switch
7-685-104-24 screw, self-tapping; ⊕ P 2x6
7-621-259-45 screw, machine ⊕P 2.6 x 6
7-623-407-01 lock washer, ext. tooth; 2.6 mm dia.
3-837-664 mounting bracket, band select
7-621-259-45 screw, ⊕ P 2.6x6
7-623-407-01 lock washer, ext. tooth; 2.6 mm dia.
3-830-343 lever C, band selector
1-222-231 variable resistor, VOL control
7-685-150-21 screw, self-tapping; ⊕ P 3x16
3-840-123 shield plate C
3-830-362 retainer, lever A
3-837-663 connecting metal, band select
1-514-546-13 switch, antenna select (S01)
3-840-125 insulator C
3-830-342 lever B, band selector
7-623-407-01 lock washer, ext. tooth 2.6 mm dia.
7-621-259-45 screw, ⊕ P 2.6x6
3-830-332 holder, ferrite bar antenna
1-401-305 coil, mw ferrite bar antenna
3-837-668 pointer
□ 7-625-705-70 rivet, 1.4 mm dia. x 6
7-633-120-52 dial cord
□ 3-825-636 pulley, P6
7-623-508-01 lug, solder; 3 mm dia.
□ 7-625-705-10 rivet, 1.4 mm dia. x 10
1-151-196 capacitor, tuning
3-852-505 cushion, tuning capacitor
1-514-546-13 switch, AFC (S04)
7-624-118-01 retaining ring, E-25
1-518-051-12 lamp, pilot
□ 3-837-615 sub chassis
7-685-134-21 screw, self-tapping; ⊕ P 3x8
3-837-805 shield cover A, resonance indicator PCB
3-837-659 contact plate B, LIGHT switch
3-837-692 cushion, speaker
3-837-639 insulator, LIGHT switch
3-837-658 contact plate A, LIGHT switch
1-581-311-11 printed circuit board, resonance indicating
1-514-763-13 switch, POWER (S05)
3-830-360 spring, slide switch
3-830-359 washer, polyethylene
3-811-133 spring, VOL knob
3-830-339 drum, volume indicate
3-837-616 holder, TONE control
3-837-806 shield cover B, resonance indicator PCB
1-222-284 variable resistor TONE control
3-825-643 contact plate, battery positive
3-840-124 shield plate D
3-840-126 insulator D
3-837-617 chassis, main
3-830-374 insulator A, fiber
1-539-875-11 printed circuit board, main
7-685-134-21 screw, self-tapping; ⊕ P 2.6x8
3-830-372 shield plate A
1-507-332-13 jack ass'y, 3-unit
3-824-751 heat sink

Note: Parts marked □ are included in subchassis ass'y, X-38376-85-1.

5-3. PACKING



SECTION 6
ELECTRICAL PARTS LIST

Ref. No.	Part No.	Description	
	SEMICONDUCTORS		
Q01	–	transistor	2SC710
Q02	–	transistor	2SK23
Q03	–	transistor	2SC930C
Q04	–	transistor	2SC710
Q05	–	transistor	2SC710
Q06	–	transistor	2SC710
Q07	–	transistor	2SC710
Q08	–	transistor	2SC710
Q09	–	transistor	2SC710
Q10	–	transistor	2SB495
Q11	–	transistor	2SB495
Q201	–	transistor	2SC633
D01	–	diode	1S351M
D02	–	–	–
D03	–	diode	1S1555
D04	–	diode	1T23
D05	–	diode	1T261
D06	–	diode	1T261
D201	–	diode	1S1555
D202	–	diode (LED)	G2P
Th01	8-691-002-11	thermistor	CS-47
IC1	8-750-253-10	integrated circuit CX-025	25D10
	8-750-253-11		25D11
	8-750-253-20		25D20
	8-750-253-21		25D21
	COILS AND TRANSFORMERS		
L01	1-401-219	coil, antenna loading	
L02	1-425-449	coil, fm ant	
L03	1-425-667	coil, fm rf	
L04	1-405-476	coil, fm osc	
L05	1-401-257	coil, sw ant	
L06	1-401-305	coil, mw ferrite bar antenna	
L07	1-407-163	33μH, micro inductor	
L08	1-407-177	470μH, micro inductor	
L09	1-405-121	coil, sw osc	
L10	1-405-301	coil, mw osc	
L11	1-407-177	470μH, micro inductor	
L12	1-407-161	22μH, micro inductor	
L13	1-407-178	1μH, micro inductor	
L201	1-407-177	470μH, micro inductor	
L202	1-407-163	33μH, micro inductor	
L203	1-407-177	470μH, micro inductor	
IFT A1	1-403-126	transformer, a-m i-f	
IFT F1	1-403-243-31	transformer, fm i-f	
IFT F2	1-403-231-31	transformer, fm i-f	
IFT F3	1-403-243-31	transformer, fm i-f	
IFT F4	1-403-272-31	transformer, fm discriminator	
IFT F5	1-403-273-31	transformer, fm discriminator	
CFT A1	1-403-165-15	ceramic filter, a-m i-f, triple tune	
CF F1	1-527-501-17	ceramic filter, fm i-f	
CF F2	1-527-501-17	ceramic filter, fm i-f	
T01	1-423-064	transformer, driver	
T02	1-427-251	transformer, output	
	CAPACITORS		
C01	1-101-878	43pF	ceramic
C02	1-101-888	68pF	ceramic
C03	1-102-962	30pF	ceramic
C04	1-101-972	91pF	ceramic
C05	1-101-923	0.01μF	ceramic
C06	1-102-951	15pF	ceramic
C07	1-101-918	0.001μF	ceramic
C08	1-101-959	10pF	ceramic
C09	1-101-918	0.001μF	ceramic
C10	1-101-959	10pF	ceramic
C11	1-102-951	15pF	ceramic
C12	1-101-943	6pF	ceramic
C13	1-105-833-12	0.01μF	mylar
C14	1-101-923	0.01μF	ceramic
C15	1-101-923	0.01μF	ceramic
C16	1-105-833-12	0.01μF	mylar
C17	–	–	–
C18	1-121-413	100μF 6.3V	electrolytic
C19	–	–	–
C20	1-101-923	0.01μF	ceramic
C21	1-101-923	0.01μF	ceramic
C22	1-101-958	8pF	ceramic
C23	1-101-923	0.01μF	ceramic
C24	1-101-923	0.01μF	ceramic
C25	1-101-923	0.01μF	ceramic
C26	1-101-923	0.01μF	ceramic
C27	1-105-843-12	0.068μF	mylar
C28	1-101-864	20pF	ceramic
C29	1-101-957	7pF	ceramic
C30	1-103-635	2,700pF	styrol
C31	1-103-614	360pF	styrol
C32	1-105-837-12	0.022μF	mylar
C33	1-101-923	0.01μF	ceramic
C34	–	–	–
C35	1-105-833-12	0.01μF	mylar
C36	1-105-839-12	0.033μF	mylar
C37	–	–	–
C38	1-121-413	100μF 6.3V	electrolytic
C39	–	–	–
C40	1-105-839-12	0.033μF	mylar
C41	1-101-923	0.01μF	ceramic
C42	1-105-833-12	0.01μF	mylar
C43	1-121-398	10μF 25V	electrolytic
C44	1-101-923	0.01μF	ceramic

Ref. No.	Part No.	Description		
C45	1-105-839-12	0.033μF		mylar
C46	1-105-833-12	0.01μF		mylar
C47	–	–		–
C48	–	–		–
C49	–	–		–
C50	1-121-398	10μF	25V	electrolytic
C51	1-121-413	100μF	6.3V	electrolytic
C52	1-105-837-12	0.022μF		mylar
C53	1-105-839-12	0.033μF		mylar
C54	1-101-952	2pF		ceramic
C55	1-105-833-12	0.01μF		mylar
C56	1-127-022	0.47μF	10V	electrolytic (alox)
C57	1-105-839-12	0.033μF		mylar
C58	–	–		–
C59	–	–		–
C60	1-127-022	0.47μF	10V	electrolytic (alox)
C61	1-105-675-12	0.015μF		mylar
C62	1-103-659	220pF		styrol
C63	1-103-659	220pF		styrol
C64	1-121-483	33μF	10V	electrolytic
C65	1-127-020	0.22μF	10V	electrolytic (alox)
C66	1-121-391	1μF	50V	electrolytic
C67	1-121-420	220μF	10V	electrolytic
C68	1-105-825-12	0.0022μF		mylar
C69	1-121-342	470μF	6.3V	electrolytic
C70	1-127-022	0.47μF	10V	electrolytic (alox)
C71	1-105-829-12	0.0047μF		mylar
C72	1-105-829-12	0.0047μF		mylar
C73	1-105-839-12	0.033μF		mylar
C74	–	–		–
C75	1-105-849-12	0.22μF		mylar
C76	1-121-342	470μF	6.3V	electrolytic
C77	1-102-973	100pF		ceramic
C78	1-121-342	470μF	6.3V	electrolytic
C79	1-121-413	100μF	6.3V	electrolytic
C80	–	–		–
C81	–	–		–
C82	–	–		–
C83	–	–		–
C84	1-105-837-12	0.022μF		mylar
C85	1-105-837-12	0.022μF		mylar
C86	1-121-483	33μF	10V	electrolytic
C87	–	–		–
C88	1-101-952	2pF		ceramic
C89	1-103-659	220pF		styrol
C90	1-102-941	5pF		ceramic
C91	1-101-882	51pF		ceramic
C201	1-101-876	39pF		ceramic
C202	1-127-049	1μF	10V	electrolytic (alox)
C203	1-121-413	100μF	6.3V	electrolytic
C204	1-105-414-12	0.033μF		mylar
C205	1-102-973	100pF		ceramic
C206	1-102-973	100pF		ceramic

Ref. No.	Part No.	Description
CT01	1-141-022	capacitor, trimmer
CT02	1-141-022	capacitor, trimmer
CT03	1-141-011	capacitor, 2-unit trimmer
CT04	1-141-011	capacitor, 2-unit trimmer
CV01	1-151-196	capacitor, tuning

RESISTORS

All resistors are ¼W, ±5% carbon type resistors unless otherwise noted.

R01	–	–	
R02	1-240-517	68kΩ (hfe rank 2)	see item 3-4., page 8.
	1-240-522	110kΩ (hfe rank 3)	
	1-240-525	150kΩ (hfe rank 4)	
R03	1-240-484	3kΩ	
R04	1-240-484	3kΩ	
R05	1-240-478	1.6kΩ	
R06	1-240-521	100kΩ	
R07	1-240-453	150Ω	
R08	1-240-476	1.3kΩ	
R09	1-240-491	5.6kΩ	
	1-240-497	10kΩ	
R10	1-244-672	910Ω	
R11	1-244-658	240Ω	
R12	1-244-717	68kΩ	
R13	1-244-728	200kΩ	
R14	1-240-473	1kΩ	
R15	1-240-461	330Ω	
R16	1-240-464	430Ω	
R17	1-240-442	51Ω	
R18	1-240-464	430Ω	
R19	1-240-509	33kΩ	
R20	1-244-649	100Ω	
R21	1-240-473	1kΩ	
R22	1-240-464	430Ω	
R23	1-240-453	150Ω	
R24	1-240-497	10kΩ	
R25	1-240-525	150kΩ	
R26	1-240-522	110kΩ	
R27	1-240-513	47kΩ	
R28	1-240-473	1kΩ	
R29	1-240-464	430Ω	
R30	1-240-507	27kΩ	
R31	1-240-458	240Ω	
R32	1-240-473	1kΩ	
R33	1-240-528	200kΩ	
R34	–	–	
R35	1-240-490	5.1kΩ	
R36	1-240-466	510Ω	
R37	1-240-488	4.3kΩ	
R38	1-240-449	100Ω	
R39	1-240-449	100Ω	
R40	1-240-497	10kΩ	
R41	–	–	
R42	1-240-484	3kΩ	

Ref. No.	Part No.	Description
R43	1-240-518	75 kΩ
R44	1-240-473	1 kΩ
R45	1-240-467	560 Ω
R46	1-210-115	100 kΩ 1/16 W carbon
R47	1-240-456	200 Ω
R48	1-240-473	1 kΩ
R49	1-240-473	1 kΩ
R50	1-240-461	330 Ω
R51	1-240-493	6.8 kΩ
R52	1-240-493	6.8 kΩ
R53	–	–
R54	1-240-481	2.2 kΩ
R55	1-240-513	47 kΩ
R56	1-244-661	330 Ω
R57	1-244-656	200 Ω
R58	1-244-667	560 Ω
	1-244-672	910 Ω
	1-244-675	1.2 kΩ
R59	1-244-609	2.2 Ω
R60	1-240-483	2.7 kΩ
R61	1-244-677	1.5 kΩ
R62	1-240-419	5.6 Ω
R63	1-240-453	150 Ω
R64	1-240-479	1.8 kΩ
R65	1-240-464	430 Ω
R66	–	–
R67	1-244-605	1.5 Ω
R68	1-240-436	30 Ω
R69	1-244-642	51 Ω
R70	–	–
R71	–	–

Ref. No.	Part No.	Description
R72	1-240-461	330 Ω
R73	1-244-677	1.5 kΩ
R74	1-244-628	13 Ω
R75	–	–
R76	1-209-766	1.5 kΩ
R77	1-244-707	27 kΩ
R78	1-201-870	330 Ω 1/8 W composition
R201	–	– –
R202	1-240-461	330 Ω 1/16 W
R203	1-210-376	16 kΩ 1/16 W
R204	1-210-375	13 kΩ 1/16 W
R205	1-210-115	100 kΩ 1/16 W
R206	1-210-102	150 Ω 1/16 W
VR01	1-222-284	variable resistor 5 kΩ, TONE control
VR02	1-222-231	variable resistor 5 kΩ, VOL control

MISCELLANEOUS

TEL ANT	1-501-124-12	antenna, telescopic
SP	1-502-267	speaker
S01	1-514-546-13	switch, antenna select
S02	1-513-279	switch, band select
S03	–	switch, LIGHT
S04	1-514-546-13	switch, AFC
S05	1-514-763-13	switch, POWER
PL	1-518-051-12	lamp
J01	1-507-332	jack ass'y, 3-unit
	1-539-875-11	printed circuit board, main
	1-581-311-11	printed circuit board, resonance indicating

– Hardware Nomenclature –

P – Pan Head Screw .....

PS – Pan Head Screw with Spring Washer .....

K – Flat Countersunk Head Screw ...

B – Binding Head Screw .....

RK – Oval Countersunk Head Screw ..

T – Truss Head Screw .....

R – Round Head Screw .....

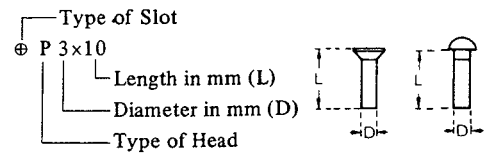
F – Flat Fillister Head Screw .....

SC – Set Screw .....

E – Retaining Ring (E Washer) .....

W – Washer
SW – Spring Washer
LW – Lock Washer
N – Nut

– Example –



When ordering replacement parts you should use PART NUMBER listed on the Parts List or shown in the Exploded View. The reference number should not be used for ordering purposes.